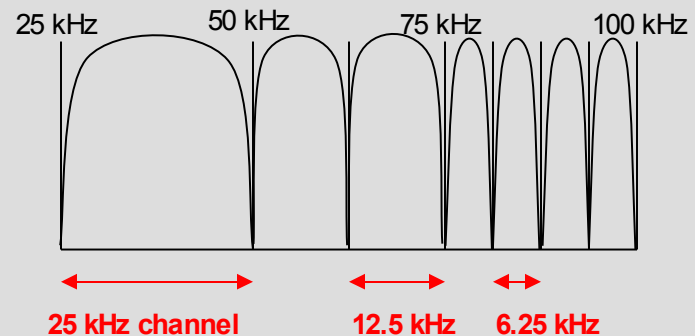
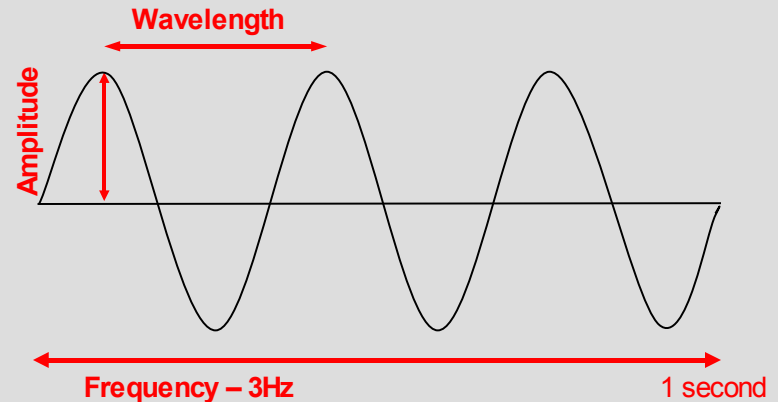


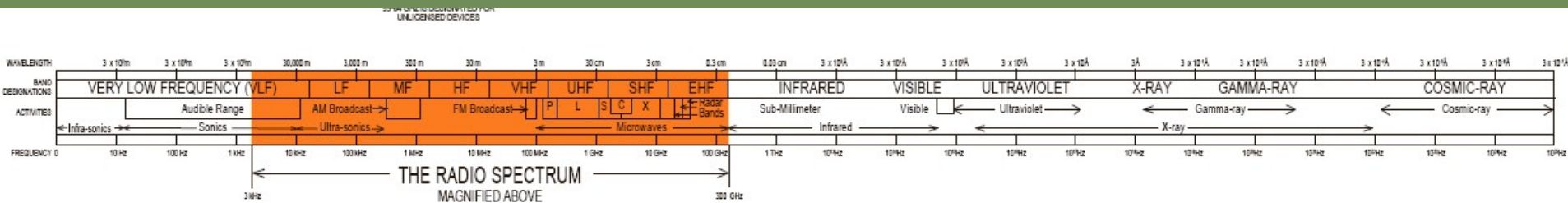
# Public Safety Radio Communications Narrowbanding Mandate

# Frequency and Bandwidth

- **Frequency** is the number of cycles a wave is repeated in a given time (per second)
- **Hertz (Hz)** is the unit of measurement for frequency (cycle per second)
  - 1,000 Hz = 1 kHz
  - 1,000,000 Hz = 1 MHz
  - 1,000,000,000 Hz = 1 GHz
- **Bandwidth** is the range of frequencies for a communications channel



# Frequency Bands



	Designation	Frequency	Wavelength
ELF	extremely low frequency	3Hz to 30Hz	100,000km to 10,000 km
SLF	superlow frequency	30Hz to 300Hz	10,000km to 1,000km
ULF	ultralow frequency	300Hz to 3000Hz	1,000km to 100km
VLF	very low frequency	3kHz to 30kHz	100km to 10km
LF	low frequency	30kHz to 300kHz	10km to 1km
MF	medium frequency	300kHz to 3000kHz	1km to 100m
HF	high frequency	3MHz to 30MHz	100m to 10m
VHF	very high frequency	30MHz to 300MHz	10m to 1m
UHF	ultrahigh frequency	300MHz to 3000MHz	1m to 10cm
SHF	superhigh frequency	3GHz to 30GHz	10cm to 1cm
EHF	extremely high frequency	30GHz to 300GHz	1cm to 1mm



# U.S. Frequency Allocations

## UNITED STATES FREQUENCY ALLOCATIONS THE RADIO SPECTRUM

### RADIO SERVICES COLOR LEGEND

AIRCRAFT MOBILE	MOBILE SATELLITE	FIXED SATELLITE
AIRCRAFT MOBILE SATELLITE	LAND MOBILE	FIXED SATELLITE SATELLITE
AIRCRAFT INFORMATION	LAND MOBILE SATELLITE	FIXED SATELLITE
NAVY	NAVY MOBILE	FIXED SATELLITE SATELLITE
NAVY SATELLITE	NAVY MOBILE SATELLITE	FIXED SATELLITE
BROADCASTING	NAVY INFORMATION	FIXED SATELLITE SATELLITE
BROADCASTING SATELLITE	METEOROLOGICAL	FIXED SATELLITE
FIXED SATELLITE	METEOROLOGICAL SATELLITE	FIXED SATELLITE SATELLITE
FIXED SATELLITE SATELLITE	FIXED SATELLITE	FIXED SATELLITE SATELLITE
FIXED SATELLITE SATELLITE	FIXED SATELLITE	FIXED SATELLITE SATELLITE

### ACTIVITY CODE

GOVERNMENT SERVICE	GOVERNMENT SERVICE (SHARED)
GOVERNMENT SERVICE	GOVERNMENT SERVICE (SHARED)

### ALLOCATION USAGE DESIGNATION

SERVICE	EXAMPLE	DESCRIPTION
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Primary	Fixed	Coastal Station
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Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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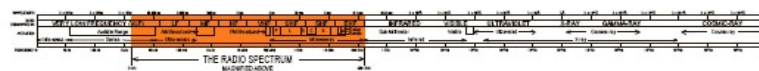
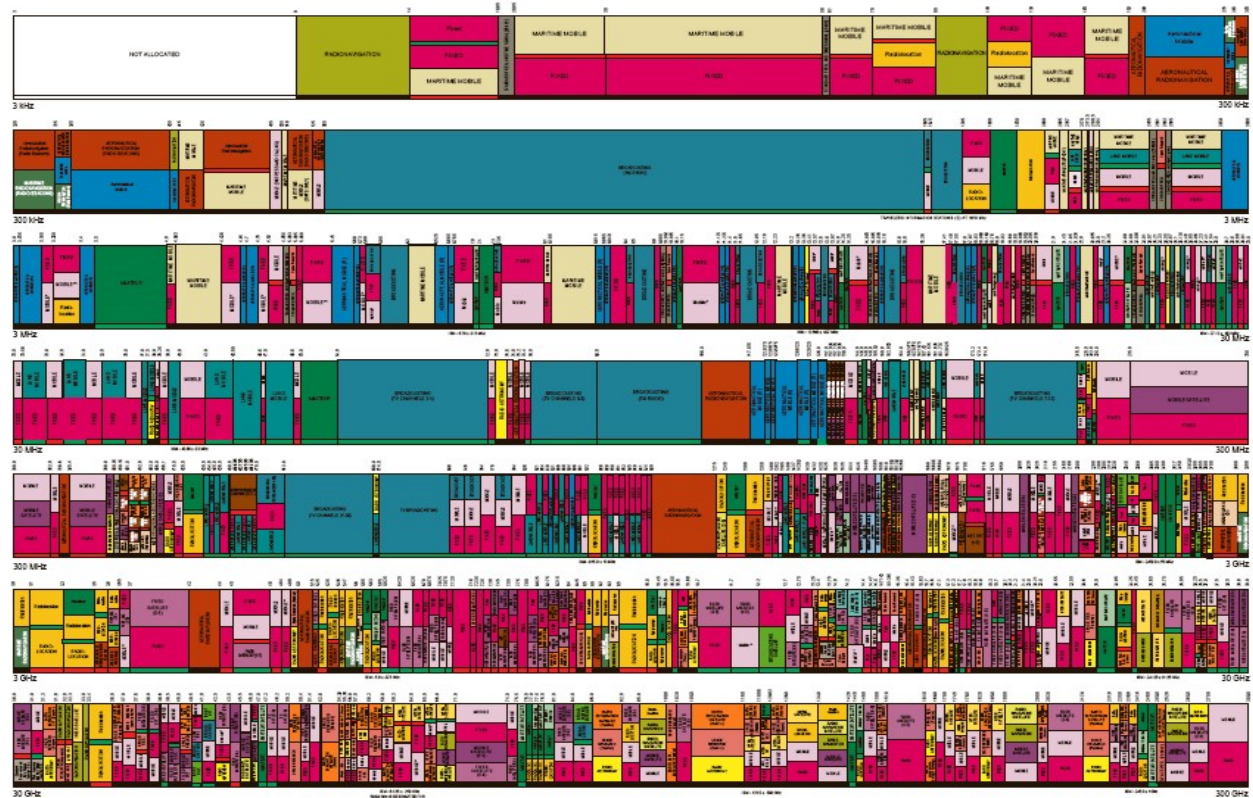
Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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Secondary	Mobile	For Coast with 1000-1000 MHz
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Primary	Fixed	Coastal Station
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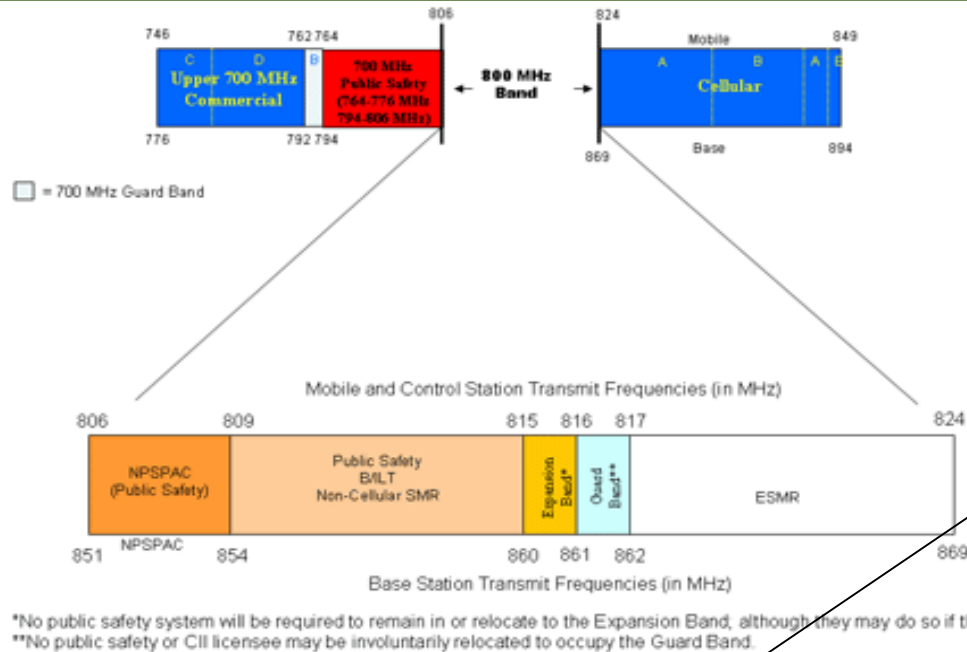
Secondary	Mobile	For Coast with 1000-1000 MHz
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REMARKS: THE RADIO SPECTRUM IS A LIMITED RESOURCE. IT IS THE RESPONSIBILITY OF THE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION TO MANAGE THE SPECTRUM IN A MANNER THAT IS EFFICIENT AND EFFECTIVE.

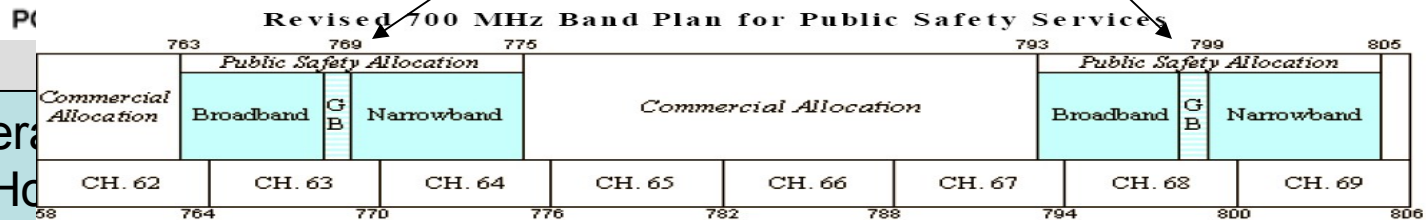
Source: National Telecommunications and Information Administration <http://www.ntia.doc.gov/osmhome/allochrt.pdf>

# Public Safety Frequency Changes



The FCC has mandated that all users operating below 512 MHz move to 12.5 kHz wide channels by 01/01/2013

After 01/01/2011 the FCC will not allow the manufacture of equipment operating above 12.5 kHz channels.



• Users operating

• How

to prevent interference from wireless carriers

• This will require some changes to Public Safety frequencies and channels

960 channels at 0.25 kHz each = 6 MHz





# U C A N 8 0 0 M H z T r u n k e d S y s t e m

- U t a h C o m m u n i c a t i o n s A g e n c y N e t w o r k ( U C A N ) p r o v i d e s 8 0 0 M H z r a d i o c o v e r a g e o n a t r u n k e d † s y s t e m a l o n g t h e W a s a t c h f r o n t
  - U C A N i s a n i n d e p e n d e n t s t a t e a g e n c y t h a t s e t s r a t e s t o r e c o v e r c o s t s o f t h e 8 0 0 M H z s y s t e m
  - S t a t e A g e n c i e s p a y r a t e s t o U C A N f o r t h e i r s h a r e o f t h e s y s t e m
  - T h e r e a r e 3,700 s t a t e u s e r s a n d 11,650 l o c a l / n o n - s t a t e a g e n c y u s e r s o n U C A N
- † **Trunking** a l l o w s u s e r s t o s h a r e a p o o l o f c h a n n e l s r a t h e r t h a n a d e d i c a t e d c h a n n e l - a c e n t r a l c o m p u t e r a s s i g n s f r e q u e n c i e s t o u s e r s

# Utah State Interoperability Executive Committee (SIEC)

- Comprised of state and local representatives to create a strategy for interoperable emergency communications in Utah
- The SIEC meets regularly and is discussing the issue of Narrow banding
  - A sub committee of technical experts is developing a plan of what technology the State should invest in
  - The SIEC will present their findings to the Governor and the Legislature